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PATENT APPLICATION AF/2671

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IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Kevin T. Lefebvre

Confirmation No.: 1331

Application No.: 10/086,402

Examiner: Kimbinh T. Nguyen

Filing Date: 02/28/2002

Group Art Unit: 2671

Title: Method Node, and Network for Compositing a Three-Dimensional Stereo Image From an Image Generated From a Non-Stereo Application

Mail Stop Appeal Brief-Patents
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PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on **12/09/2004**.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( )	one month	$120.00
( )	two months	$450.00
( )	three months	$1020.00
( )	four months	$1590.00

( ) The extension fee has already been filled in this application.

(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

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Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Kevin T. Lefebvre, et al.
Serial No.:	10/086,402
Filing Date:	February 28, 2002
Group Art Unit:	2671
Examiner:	Kimbinh T. Nguyen
Title:	Method Node, and Network for Compositing a Three-Dimensional Stereo Image From an Image Generated From a Non-Stereo Application

MAIL STOP: APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

APPEAL BRIEF

Applicant has appealed to the Board of Patent Appeals and Interferences from the decision of the Examiner mailed October 12, 2004, finally rejecting Claims 1-23. Applicant filed a Notice of Appeal on December 9, 2004. Applicant respectfully submits herewith this Appeal Brief with authorization to charge the statutory fee of $500.00.

02/15/2005 AWONDAF1 00000057 082025 10086402
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REAL PARTY IN INTEREST

The present application was assigned to Hewlett-Packard Company as indicated by an assignment from the inventors recorded on July 9, 2002 in the Assignment Records of the United States Patent and Trademark Office at Reel 013072, Frame 0183. The present application was subsequently assigned to Hewlett-Packard Development Company, L.P. as indicated by an assignment from Hewlett-Packard Company recorded on June 18, 2003 in the Assignment Records of the United States Patent and Trademark Office at Reel 013776, Frame 0928.

RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this pending appeal.

STATUS OF CLAIMS

Claims 1-23 stand rejected pursuant to a Final Office Action mailed October 12, 2004. Claims 1-23 are presented for appeal.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the mailing of the Final Office Action.

SUMMARY OF INVENTION

Independent Claim 1

Embodiments of the present invention as defined by independent Claim 1 are directed toward a method of assembling a composite image comprising generating three-dimensional data (455-458) defining a non-stereo image, assigning a first screen portion (366) to a first rendering node (32A-32N), assigning a second screen portion (367) to a second rendering node (32A-32N), rendering, by the first rendering node (32A-32N), a left image portion from the three-dimensional data (455-458), rendering, by the second rendering node (32A-32N), a right image portion from the three-dimensional data (455-458), and assembling the left image portion and the right image portion into the composite image. (page 5, paragraph 0025, page 6, paragraphs 0027-0028 and 0032, page 13, paragraph 0048, page 15, paragraphs 0052-0053, page

16, paragraph 0055, page 21, paragraph 0069, pages 21-22, paragraph 0070, pages 23-24, paragraph 0072, page 25, paragraph 0076, figures 2 and 6-11).

Independent Claim 6

Embodiments of the present invention as defined by independent Claim 6 are directed toward a node of a network for rendering a three-dimensional image comprising a processing element (155,255) and a memory module (140,206), the memory module (140,206) maintaining a stereo transform application (218) executable by the processing element (155,255), the stereo transform application (218) operable to receive three-dimensional data (455-458) defining a non-stereo image, process the three-dimensional data (455-458) and provide output of at least one of a left channel image and a right channel image of a composite image comprised of the left channel image and the right channel image. (page 5, paragraph 0025, page 6, paragraphs 0027-0028 and 0032, page 13, paragraph 0048, page 15, paragraphs 0052-0053, page 16, paragraph 0055, page 17, paragraph 0057, page 21, paragraph 0069, pages 21-22, paragraph 0070, pages 23-24, paragraph 0072, page 25, paragraph 0076, figures 2 and 4-11).

Independent Claim 13

Embodiments of the present invention as defined by independent Claim 13 are directed toward a network for rendering a three-dimensional composite stereo image comprising a first and second rendering node (32A-32N) each respectively comprising a first and second processing element (155,255) and a first and second memory module (140,206) maintaining a respective instance of a stereo transform application (218) executable by the first and second processing element (155,255), each instance of the stereo transform application (218) operable to receive data defining a three-dimensional non-stereo image, perform a transform on the three-dimensional non-stereo image and output at least one of a left channel image and a right channel image. The network according to embodiments of the present invention as defined by independent Claim 13 also comprises a compositor node (140) operable to receive a respective first data stream and a second data stream from the first and second rendering nodes (32A-32N), the first data stream comprising one of the left channel image and the right channel image output from the instance of the stereo

transform application (218) maintained by the first rendering node (32A-32N), the second data stream comprising one of the left channel image and the right channel image output from the instance of the stereo transform application (218) maintained by the second rendering node (32A-32N), the compositor node (140) operable to assemble the first data stream and the second data stream into a composite three-dimensional stereo image. (page 5, paragraph 0025, page 6, paragraphs 0027-0028 and 0032, page 13, paragraph 0048, page 15, paragraphs 0052-0053, page 16, paragraph 0055, page 17, paragraph 0057, page 21, paragraph 0069, pages 21-22, paragraph 0070, pages 23-24, paragraph 0072, page 25, paragraph 0076, figures 2 and 4-11).

Independent Claim 19

Embodiments of the present invention as defined by independent Claim 19 are directed toward a method of assembling a composite image comprising generating three-dimensional data (455-458) defining a non-stereo image, assigning a first screen portion (366) to a first graphics pipeline (32A-32N), assigning a second screen portion (367) to a second graphics pipeline (32A-32N), rendering, by the first graphics pipeline (32A-32N), a left image portion from the three-dimensional data (455-458), rendering, by the second graphics pipeline (32A-32N), a right image portion from the three-dimensional data (455-458), and assembling the left image portion and the right image portion into the composite image. (page 5, paragraph 0025, page 6, paragraphs 0027-0028 and 0032, page 13, paragraph 0048, page 15, paragraphs 0052-0053, page 16, paragraph 0055, page 21, paragraph 0069, pages 21-22, paragraph 0070, pages 23-24, paragraph 0072, page 25, paragraph 0076, figures 2 and 6-11).

GROUNDS OF REJECTION

1. Claims 1-4, 6, 8 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,982,375 issued to Nelson et al. (hereinafter "*Nelson*") in view of U.S. Patent No. 6,590,573 issued to Geshwind (hereinafter "*Geshwind*"). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of U.S. Patent No. 6,111,597 issued to Tabata (hereinafter "*Tabata*"). Claims 7, 9-15 and 18-23 are rejected under

35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of U.S. Patent No. 6,147,695 issued to Bowen et al. (hereinafter "*Bowen*"). Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of U.S. Patent No. 6,446,130 issued to Grapes (hereinafter "*Grapes*").

ARGUMENT

A. Standard

35 U.S.C. § 103(a)

To establish a *prima facie* case of obviousness under 35 U.S.C § 103, three basic criteria must be met: First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, (Fed. Cir. 1991); M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Moreover, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000).

B. Argument

1. Claims 1-5 and 19-23

Claims 1-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind*. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of *Tabata*. Claims 19-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of *Bowen*. Of these claims, Claims 1 and 19 are independent. Applicants respectfully submit that independent Claims 1 and 19 are patentable over the cited references, alone or in the combinations indicated by the

Examiner, and thus remaining Claims 2-5 and 20-23 which depend respectively from independent Claims 1 and 19 are also patentable.

Embodiments of the present invention generally involve a visualization system and method for rendering two-dimensional (2D) and/or three-dimensional (3D) graphical data via a plurality of graphics or rendering pipelines (page 5, paragraph 0025, page 7, paragraphs 0029-0032). For example, in some embodiments of the present invention, graphical data is distributed to a plurality of graphics or rendering pipelines where at least one pipeline renders 2D graphical data and data for 3D rendering is distributed to one or more other rendering pipelines (page 7, paragraph 0029). Further, in some embodiments of the present invention, each pipeline is responsible for rendering the graphical data for a respective portion or sub-screen of an image such that the graphical data rendered by each pipeline defines a respective portion of the overall image to be displayed (page 6, paragraph 27, page 15, paragraphs 0052-0053, 0055). Embodiments of the present invention also comprise a compositor for assembling the rendered portion or sub-screens from respective pipelines and recombining the multiple sub-screens into a single screen image for presentation (page 6, paragraph 0028, page 8, paragraph 0034). Accordingly, independent Claim 1 recites, at least in part, "assigning a first screen portion to a first rendering node," "assigning a second screen portion to a second rendering node," "rendering, by the first rendering node, a left image portion from the three-dimensional data," "rendering, by the second rendering node, a right image portion from the three-dimensional data" and "assembling the left image portion and the right image portion into the composite image," and independent Claim 19 recites, at least in part, "assigning a first screen portion to a first graphics pipeline," "assigning a second screen portion to a second graphics pipeline," "rendering, by the first graphics pipeline, a left image portion from the three-dimensional data," "rendering, by the second graphics pipeline, a right image portion from the three-dimensional data" and "assembling the left image portion and the right image portion into the composite image."

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. For example, Applicants respectfully submit that

independent Claims 1 and 19 are patentable over the cited references at least because the cited references, alone or in combination, do not disclose teach or suggest all limitations of independent Claims 1 and 19. Additionally, Applicants respectfully submit that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner. Further, Applicants respectfully submit that even if the proposed references were combined, which Applicants submit is improper, the resulting combination does not perform the function or operational characteristics of Applicants' claimed invention.

Regarding independent Claim 1, in the Final Office Action, the Examiner states that *Nelson* discloses "assigning a first screen portion to a first rendering node (convey final left eye view data to rendering unit 570; fig.6)" and "assigning a second screen portion to a second rendering node (convey final right eye view data to rendering unit 590; fig. 6)" (Final Office Action, section 4, page 2). Regarding independent Claim 19, the Examiner repeats the rationale rejecting Claim 1 as a basis for rejecting Claim 19 (Final Office Action, section 6, page 7). Applicants respectfully disagree.

Nelson is directed toward a graphics accelerator with single-pass stereo capability (*Nelson*, column 2, lines 45-46). *Nelson* appears to disclose a graphics accelerator 112 having a command block 142 connected to a plurality of floating point blocks 152 where each floating point block 152 includes three main functional units or core processors (F-core block 352, L-core block 354, and S-core block 356) (*Nelson*, column 5, lines 5-25, column 6, lines 49-59). *Nelson* also appears to disclose that each core processor performs different functions associated with a primitive (F-core block 352 performs all floating point operations, including geometry transformation, clip testing, face determination, perspective division, and screen space conversion; L-core block 354 performs substantially all lighting calculations; S-core block performs setup calculations for all primitives) (*Nelson*, Column 6, lines 59-67, column 7, lines 1-15). *Nelson* also appears to disclose that when a header word for a given geometric primitive is received by F-core block 352, a microcode command is employed to set a bit in F-core state bits register 410 corresponding to <u>which eye view is currently being performed</u> (*Nelson*, column 9, lines 53-59)(emphasis added).

Nelson further appears to disclose that F-core block 352 first performs a left eye transformation in step 540 (of figure 5) on the geometry data employing left view transformation matrices, and then the same primitive is transformed again by F-core block 352 using the view transformation matrices from the other eye (i.e., the right eye view transformation matrices) (*Nelson*, column 9, lines 61-67, column 10, lines 1-15) (emphasis added). Thus, in *Nelson*, the same floating point block performs both the left and right view transformations, in contrast to "assigning a first screen portion to a first rendering node," and "assigning a second screen portion to a second rendering node" as recited by Applicants' independent Claim 1 (emphasis added), or "assigning a first screen portion to a first graphics pipeline" and "assigning a second screen portion to a second graphics pipeline" as recited by Applicants' independent Claim 19 (emphasis added). To the contrary, in *Neslon*, the same element appears to render both the left and right images. *Geshwind* and *Bowen* do not remedy the deficiencies of *Nelson*.

In the Final Office Action, the Examiner refers to figure 6 of *Nelson* and appears to refer to "570" and "590" as different "rendering units" (Final Office Action, page 2, section 4). Applicants respectfully disagree. Applicants respectfully submit that reference numerals "570" and "590" depicted in figure 6 of *Nelson* appear to identify different steps in a flow diagram and, therefore, do not relate to any structural component or element of the *Nelson* system. For example, *Nelson* refers to such reference numerals as "step 570" and "step 590" (*Nelson*, column 11, lines 45-47). Thus, Applicants respectfully submit that the Examiner has misinterpreted figure 6 of *Nelson*.

Further, *Nelson* appears to disclose that that the F-core block 352 of *Nelson* transforms the entire image (first for a left eye view and then for a right eye view)(*Nelson*, column 9, lines 53-59, lines 61-67, column 10, lines 1-15). Thus, *Nelson* does not appear to disclose or even suggest that a first node or pipeline renders "a first screen portion" of an image and a second node or pipeline renders "a second screen portion" of an image where the first and second screen portions are assembled to form an image as recited generally by independent Claims 1 and 19 (emphasis added). *Geshwind* and *Bowen* do not remedy the deficiencies of *Nelson*. Thus,

Nelson or *Geshwind* or *Bowen*, alone or in combination, do not disclose, teach or suggest all limitations of independent Claims 1 and 19.

Additionally, Applicants respectfully submit that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner. For example, in the Final Office Action, the Examiner states that *Nelson* does not teach assembling the left image portion and the right image portion into the composite image (Final Office Action, page 2, section 4). The Examiner also states that *Geshwind* purportedly teaches assembling the left image portion and the right image portion into the composite image, and that it would have been obvious to incorporate a 3D composite as purportedly taught by *Geshwind* into the method of *Nelson* (Office Action, section 4, pages 2-3). Applicants respectfully disagree.

Nelson appears to disclose that stereo glasses 92 are used in conjunction with a display device 84 to support viewing in stereo mode such that the stereo glasses 92 are synchronized to a refresh rate of the display device 84 of *Nelson* so that the stereo glasses 92 only allow one eye at a time to view the display device (*Nelson*, column 3, lines 55-65, figure 1). *Geshwind* also appears to disclose the use of LCD shuttered glasses for viewing the image generated by the *Geshwind* system ("The embodiments described herein employ LCD shuttered glasses, synchronized to the field rate of an interlaced video display" (*Geshwind*, column 3, lines 32-35)). Thus, Applicants respectfully submit that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner at least because the *Nelson* system apparently already utilizes a shuttered/synchronized method to display the 3D image as purportedly taught by *Geshwind* so there would have been no need or benefit to combine *Geshwind* with *Nelson*. Further, the Examiner refers to the images of *Geshwind* as a "composite" image formed of the left and right image (Final Office Action, page 2, section 2). Applicants respectfully disagree. *Geshwind* appears to disclose that 2D image planes are stacked to form a multi-planed 3D image (*Geshwind*, column 5, lines 51-53). Thus, the "composite" image referred to by the Examiner in *Geshwind* appears to be multiple stacked 2D image planes for either the left or right image, in contrast to a composite images formed by "assembling the left image portion and the right image portion" as recited by independent Claims 1 and

19. *Bowen* does not remedy the deficiencies of *Nelson* or *Geshwind*, alone or in combination. Accordingly, even if the proposed references were combined, which Applicants submit is improper, the resulting combination does not perform the function or operational characteristics of Applicants' claimed invention.

Thus, for at least the reasons discussed above, independent Claims 1 and 19 are patentable over *Nelson*, *Geshwind* and *Bowen*. Accordingly, Applicants respectfully submit that the rejection of Claims 1 and 19 was improper and that Claims 2-5 and 20-23 which depend respectively from independent Claims 1 and 19 are in condition for allowance.

2. Claims 6-18

Applicants respectfully submit that Claims 6-18 are separately patentable relative to Claims 1-5 and 19-23. Claims 6, 8 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind*. Claims 7, 9-15 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of *Bowen*. Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nelson* in view of *Geshwind* and further in view of *Grapes*. Of these claims, Claims 6 and 13 are independent. Applicants respectfully submit that independent Claims 6 and 13 are patentable over the cited references, alone or in the combinations indicated by the Examiner, and thus remaining Claims 7-12 and 14-18 which depend respectively from independent Claims 6 and 13 are also patentable.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. For example, Applicants respectfully submit that independent Claims 6 and 13 are patentable over the cited references at least because the cited references, alone or in combination, do not disclose teach or suggest all limitations of independent Claims 6 and 13. Additionally, Applicants respectfully submit that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner. Further, Applicants respectfully submit that even if the proposed references were combined, which Applicants submit is improper, the

resulting combination does not perform the function or operational characteristics of Applicants' claimed invention.

Regarding independent Claim 6, in the Office Action, the Examiner states that *Nelson* does not suggest a composite image (Final Office Action, section 4, page 3), but that it would have been obvious to incorporate the compositing image as purportedly taught by *Geshwind* into the stereo transform application of *Nelson* (Office Action, section 4, pages 3-4). Regarding independent Claim 13, the Examiner repeats the rationale provided as a basis for rejecting Claims 1 and 6 with respect to the *Nelson* reference (Final Office Action, section 6, page 6) and further states that *Bowen* discloses a network and combining two images (Final Office Action, section 6, page 6) and that it would be obvious to modify the *Nelson* reference with the teachings of *Bowen* (Final Office Action, section 6, page 6). Applicants respectfully disagree.

Applicants respectfully submit that neither *Nelson* or *Geshwind* or *Bowen* disclose or even suggest "a composite image comprised of the left channel image and the right channel image" as recited by Applicants' independent Claim 6 (emphasis added) or "a compositor node operable to assemble [a] first data stream [comprising a left channel and a right channel image] and the second data stream [comprising a left channel image and a right channel image] into a composite three-dimensional stereo image" as recited by Applicants' independent Claim 13 (emphasis added). To the contrary, as discussed further below, Applicants respectfully submit that the cited references alternately display either the left image or the right image.

For example, embodiments of the present invention generally involve a visualization system and method for rendering two-dimensional (2D) and/or three-dimensional (3D) graphical data via a plurality of graphics or rendering pipelines (page 5, paragraph 0025, page 7, paragraphs 0029-0032). For example, in some embodiments of the present invention, graphical data is distributed to a plurality of graphics or rendering pipelines where at least one pipeline renders 2D graphical data and data for 3D rendering is distributed to one or more other rendering pipelines (page 7, paragraph 0029). Further, in some embodiments of the present invention, one or

more of the graphics pipelines are responsible for rendering left channel images and/or right channel images (page 22, paragraph 0070). Embodiments of the present invention also comprise a compositor for assembling the rendered left and right channel images from respective pipelines to form a composited image to simultaneously display the left channel (corresponding to a left eye of a viewer) and the right channel (corresponding to a right eye of a viewer) (pages 28-29, paragraphs 0084-0086). Accordingly, independent Claim 6 recites, at least in part, "a memory module maintaining a stereo transform application . . . operable to receive three-dimensional data defining a non-stereo image . . . and provide output of at least one of a left channel image and a right channel image of a composite image comprised of the left channel image and the right channel image" (emphasis added), and independent Claim 13 recites, at least in part, "a first and second rendering node each respectively comprising . . . a stereo transform application . . . operable to receive data defining a three-dimensional non-stereo image . . . and output at least one of a left channel image and a right channel image" and "a compositor node operable to . . . assemble the first data stream [from the first node] and the second data stream [from the second node] into a composite three-dimensional stereo image" (emphasis added).

As discussed above in connection with independent Claims 1 and 19, Applicants respectfully submit that the cited references, alone or in combination, do not disclose teach or suggest all limitations of independent Claims 6 and 13. For example, Applicants respectfully submit that both *Nelson* and *Geshwind* appear to utilize a shuttered/synchronized method to display a 3D image and, therefore, neither *Nelson* nor *Geshwind*, alone or in combination, form a composite image comprised of the left channel image and the right channel image as generally recited by independent Claims 6 and 13. Further, neither *Bowen* nor *Grapes* remedy the deficiencies of *Nelson* or *Geshwind*, alone or in combination. Additionally, as discussed above in connection with independent Claims 1 and 19, there is no suggestion or motivation to combine reference teachings a proposed by the Examiner. For example, Applicants respectfully submit that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner at least because the *Nelson* system apparently already utilizes a shuttered/synchronized method to display the 3D image as purportedly taught by *Geshwind* so there would have been no need or

benefit to combine the references as proposed by the Examiner. Accordingly, Applicants respectfully submit that the purported teachings of *Geshwind*, even when combined with *Nelson* as proposed by the Examiner, which Applicants maintain is improper, do not perform the function or operational characteristics of Applicants' claimed invention.

Thus, for at least the reasons discussed above, independent Claims 6 and 13 are patentable over *Nelson*, *Geshwind*, *Grapes* and *Bowen*. Accordingly, Applicants respectfully submit that the rejection of Claims 6 and 13 was improper and that Claims 7-12 and 14-18 which depend respectively from independent Claims 6 and 13 are in condition for allowance.

CONCLUSION

Applicants have demonstrated that the present invention as claimed is clearly distinguishable over the art cited of record. Therefore, Applicants respectfully request the Board of Patent Appeals and Interferences to reverse the final rejection of the Examiner and instruct the Examiner to issue a notice of allowance of all claims.

The Commissioner is authorized to charge the statutory fee of $500.00 to Deposit Account No. 08-2025 of Hewlett-Packard Company. Although no other fee is believed due, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 08-2025 of Hewlett-Packard Company.

Respectfully submitted,

Date: 2-9-05

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CLAIMS APPENDIX

1. A method of assembling a composite image, comprising:

generating three-dimensional data defining a non-stereo image;

assigning a first screen portion to a first rendering node;

assigning a second screen portion to a second rendering node;

rendering, by the first rendering node, a left image portion from the three-dimensional data;

rendering, by the second rendering node, a right image portion from the three-dimensional data; and

assembling the left image portion and the right image portion into the composite image.

2. The method according to claim 1, wherein generating three-dimensional data defining a non-stereo image further comprises generating three-dimensional data comprising RGB data and depth data defining the non-stereo image.

3. The method according to claim 1, wherein assigning a second screen portion to a second rendering node further comprises assigning, at an offset from the first screen portion, the second screen portion to the second rendering node.

4. The method according to claim 3, wherein assigning the second screen portion at an offset from the first screen portion further comprises assigning the second screen portion at an x-axis offset and a y-axis offset from the first screen portion.

5. The method according to claim 1, further comprising generating two-dimensional data defining a window in which the composite image is to be rendered.

6. A node of a network for rendering a three-dimensional image, comprising:

a processing element; and

a memory module maintaining a stereo transform application executable by the processing element, the stereo transform application operable to receive three-dimensional data defining a non-stereo image, process the three-dimensional data and provide output of at least one of a left channel image and a right channel image of a composite image comprised of the left channel image and the right channel image.

7. The node according to claim 6, further comprising pipeline hardware operable to transmit the output to a compositing node operable to assemble the output with an output from another node into a composite image.

8. The node according to claim 6, wherein the three-dimensional data defining the non-stereo image comprises RGB data and depth data associated therewith.

9. The node according to claim 6, wherein the memory module further maintains an application programmer's interface layer in communication with the stereo transform application, the three-dimensional data provided to the stereo transform application via the application programmer's interface.

10. The node according to claim 9, wherein the application programmer's interface comprises an instance of a OpenGL protocol layer.

11. The node according to claim 6, wherein the memory module further maintains an application that controls a bitmap display that receives and processes two-dimensional data associated with the three-dimensional data.

12. The node according to claim 11, wherein the application that controls a bitmap display is an instance of X server executable by the processing element.

13. A network for rendering a three-dimensional composite stereo image, comprising:

a first and second rendering node each respectively comprising a first and second processing element and a first and second memory module maintaining a respective instance of a stereo transform application executable by the first and second processing element, each instance of the stereo transform application operable to receive data defining a three-dimensional non-stereo image, perform a transform on the three-dimensional non-stereo image and output at least one of a left channel image and a right channel image; and

a compositor node operable to receive a respective first data stream and a second data stream from the first and second rendering nodes, the first data stream comprising one of the left channel image and the right channel image output from the instance of the stereo transform application maintained by the first rendering node, the second data stream comprising one of the left channel image and the right channel image output from the instance of the stereo transform application maintained by the second rendering node, the compositor node operable to assemble the first data stream and the second data stream into a composite three-dimensional stereo image.

14. The network according to claim 13, further comprising a master node running an instance of a non-stereo graphics application, the master node operable to provide the data defining the three-dimensional non-stereo image to each of the first and second rendering nodes.

15. The network according to claim 13, wherein the left channel image and the right channel image are assigned to respective portions of the composite image.

16. The network according to claim 15, wherein the left channel image and the right channel image are offset by an x-axis offset and a y-axis offset.

17. The network according to claim 13, further comprising a remote node, the compositor node operable to transmit the composite image to the remote node.

18. The method of claim 1, wherein said assembling comprises sequentially assembling the left image portion and the right image portion into the composite image.

19. A method of assembling a composite image. comprising:

generating three-dimensional data defining a non-stereo image;

assigning a first screen portion to a first graphics pipeline;

assigning a second screen portion to a second graphics pipeline;

rendering, by the first graphics pipeline, a left image portion from the three-dimensional data;

rendering, by the second graphics pipeline, a right image portion from the three-dimensional data; and

assembling the left image portion and the right image portion into the composite image.

20. The method according to claim 19, wherein generating three-dimensional data defining a non-stereo further comprises generating three-dimensional data comprising RGB data and depth data defining the non-stereo image.

21. The method according to claim 19, wherein assigning a second screen portion to a second graphics pipeline further comprises assigning, at an offset from the first screen portion, the second screen portion to the second graphics pipeline.

22. The method according to claim 21, wherein assigning the second screen portion at an offset from the first screen portion further comprises assigning the second screen portion at an x-axis offset and a y-axis offset from the first screen portion.

23. The method according to claim 19, further comprising generating two-dimensional data defining a window in which the composite image is to be rendered.